

REMARKS

Claim 43 has been amended. Claims 44 and 45 have been canceled. New claims 81-83 have been added. The application now includes claims 43 and 81-83.

Claim 81 is drawn to the formation of particles under pressure by a fluid expansion process. This can best be seen on page 4 in paragraph [0026] of the application. Claim 82 is related to the chemical composition of the template that is disclosed with the template compounds on page 7 in paragraph [0054] of the application. Claim 83 is related to the chemical composition of the polymer that is shown on page 6 in paragraphs [0042-0049].

In addressing the objection to claims 43-45, the process step identified in the office action has simply been eliminated from the claim. Claim 43 now better reflects the process shown in Figure 1 of the application where a mixture of monomer, propellant in liquid form, and template are expanded through a nozzle to produce particles containing monomer and template and to release the propellant as a gas.

In addressing the rejection of claims 43-45 for indefiniteness, claim 43 now specifies “Polymeric particles, which are molecularly imprinted”. Thus, the confusion caused by “with a template has been eliminated.

Claims 43-45 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,959,050 to Mosbach et al. This rejection is traversed in view of the amendments above, and remarks below.

As is recognized in the office action, the Mosbach process is quite different from that used by the applicants. In particular, Mosbach uses an emulsification process to produce imprinted particles, and requires very precise chemistries to achieve imprinting (e.g., a liquid fluorocarbon compound, a fluorocarbon polymer, and two distinct acrylic monomers in the presence of the imprint molecule. Mosbach states that the particles produced by the process are 2-100 μ m in size and preferably 2-25 μ m in size (see column 8, line 54). Mosbach indicates that using the described technique, mean bead sizes of 19.7 μ m were achieved (see column 8, lines 56-57), and that with a shaking experiment beads of 40-100 μ m were obtained (see column 8, lines 61-62).

Because of the processes used in the present invention, molecularly

imprinted particles of significantly smaller size are achieved. Claim 43 has been amended to include the substance of original claim 45, and now specifies that the particles are 1 μm in size or smaller. This is $\frac{1}{2}$ the diameter of the smallest possible diameter suggested in Mosbach, and an order of magnitude smaller than the smallest reported diameter in Mosbach (19.7 μm). These sizes are achieved using a nozzle spray technology where the particles leaving the nozzle are a mass of monomer and template, with the propellant leaving the mixture as a gas. Thus, the invention is not limited to precise chemistries and limitations of emulsion techniques, and the claimed particles are physically different from Mosbach in terms of their much smaller size and for other reasons including without limitation the use of diolefinic chemistries (claim 83).

Furthermore, the cavities in the particles prepared in the particles prepared by the Mosbach method (traditional molecular imprinting) are matched in both size and chemical functionality to the template molecule. This is because the Mosbach imprinting procedure utilizes functional monomers which chemically bond to the template during polymerization. When the template is removed, these chemical bonds are broken leaving cavities matched both in size and chemical functionality to the template. The cavities/pores in the particles prepared according to the recited processes in the present application are matched in size, but not chemical functionality to the template molecule. This is because no functional monomers are used during the polymerization reaction. After template removal, the cavities or pores in the claimed particles have a size corresponding to the template molecule, but no specific chemical affinity to the template. Thus, the Mosbach particles will exhibit high chemical specificity to the template and not other molecules because the interaction requires both size and chemical matching. In contrast, the claimed particles will exhibit high specificity to any molecule at or below the size of the template (size exclusion) and are less sensitive to the chemical structure. The claimed particles would be used for filtration based on size exclusion, for example, while the Mosbach particles would be used for molecular recognition.


In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 43 and 81-83 be allowed, and that the application be

passed to issue.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Please proceed to examination on the merits.

Respectfully submitted,



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